REMARKS

Favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

The specification at page 7 was objected to on the basis of a minor informality.

Page 7 of the specification has been clarified to read that the Cu ores are fairly rich in Cobalt. Thus the objection to the disclosure is deemed to be overcome.

The description at pages 13-14 has also been corrected to conform to the upper and lower ranges of Mv which are supported in claim 1. Thus the specification has been amended so as to be consistent with claim 1.

Claims 1-6 were rejected under 35 USC 112, second paragraph, as being indefinite for the reasons set forth.

Claims 1-6 have been cancelled without prejudice and replaced with new claims 7-12, respectively. The wording of the new claims is deemed to overcome each ground of rejection set forth in the Official Action.

Accordingly, reconsideration and withdrawal of this ground of rejection is solicited.

Claims 1-6 are rejected under 35 USC 103 as unpatentable over JP 2002-241856 (hereinafter Reference 1) in view of U.S. 2,822,243 (hereinafter Reference 2). This ground of rejection is respectfully traversed.

(1) The present invention comprises the following features:

(a) to the $CoSO_4$ solution with a pH of 2.5-6,

(b) NaOCl is added as the oxidative agent,

(c) to attain an oxidation-reduction potential (ORP) to the standard hydrogen electrode (SHE) in a range of 1100-1300 mV, and thus

(d) the precipitate of Mn is formed.

(2) On the other hand Reference 1 discloses:

(a) keeping the $NiSO_4$+$CoSO_4$ solution at a pH of 3 or lower,

(b) $Ni(OH)_3$ and/or $Co(OH)_3$ are added as the oxidative agent,

(c) to adjust an ORP (to the Ag-AgCl electrode) in a range of 1000-1200 mV (which corresponds to 1220-1420 mV to SHE), and

(d) the precipitate of Mn is formed.

(3) Reference 2 discloses:

(a) to the $MnSO_4$ solution with a pH of 5.4,

(b) NaOCl+NaOH is added, and

(c) Mn is oxidized at a pH of 7.

(4) The Examiner indicated that the present invention is obvious over Reference 1 in view of Reference 2, since it would have been easily achieved if the oxidative agent of Reference 1 had been replaced by NaOCl+NaOH of Reference 2.

However, Reference 2 in which the use of NaOCl at an acidic condition is not desired (by adjusting to pH 7 under coexistence of NaOH) "teaches away" from combining with Reference 1 in which Mn should be oxidized at pH 3 or lower.

In addition, the conditions of Reference 2 may be acceptable for a simple element precipitation, but are not necessarily viable for removing an element from a solution containing also other elements. A person skilled in the art would not be motivated to use such conditions in the process of Reference 1, since the addition of NaOCl+NaOH to the solution of Reference 1 would result in a substantial co-precipitation of Ni and Co.

Further, the concentration of Mn in the filtrate of Reference 1 (Table 1) is still 0.77 g/l at the ORP of 1048 mV (1268 mV to SHE) and decreases to 0.001 g/l or lower at the elevated ORP of 1094 mV (1314 mV to SHE). On the other hand, the Mn concentration of the present invention decreases to 0.0013 g/l already at the ORP of 1200 mV, which shows an unexpected effect of NaOCl of achieving a higher degree of Mn removal at a lower ORP value.

Thus, in view of the foregoing, it is respectfully submitted that the method of the present invention is not obvious over Reference 1 in view of Reference 2.

Thus, reconsideration and withdrawal of this ground of rejection is solicited.

Lastly, claims 1-6 are rejected under 35 USC 103 as unpatentable over JP 357140838 (hereinafter Reference 3) in view of Reference 2. This ground of rejection is respectfully traversed.

(5) The Reference 3 discloses:

(a) adjusting the $NiSO_4$+$CoSO_4$ solution at a pH of 0.8-1.8,

(b) $Co(OH)_3$ and/or $Ni(OH)_3$ are added as the oxidative agent,

(c) to attain an ORP (to the saturated calomel electrode) in a range of 800-1100 mV (which corresponds to 1040-1340 mV to SHE), and

(d) the precipitate of Mn is formed.

(6) The Examiner noted that the present invention is obvious over Reference 3 in combination with the oxidative agent of the above Reference 2.

However, the Applicant maintains that the claimed invention is unobvious for the same reasons as stated in above (4):

Reference 2 discloses the Mn oxidation at pH 7 which teaches away from combining with Reference 3 in which Mn should be oxidized at the pH of 0.8-1.8.

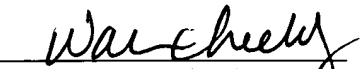
The addition of NaOCl+NaOH of Reference 2 to the solution of Reference 3 would result in a substantial co-precipitation of Ni and Co.

Compared with the Mn concentration in the filtrate of Reference 3 (Table 2) being still 0.01 g/l at the ORP of 980 mV (1220 mV to SHE), the present invention unexpectedly decreases the Mn concentration to 0.0013 g/l at the ORP of 1200 mV. Based on such unexpected effect of NaOCl of achieving a higher degree of Mn removal, it is respectfully submitted that the present invention is not obvious over Reference 3 in view of Reference 2.

In view of the foregoing, it is believed that each ground of rejection set forth in the Office Action has been overcome, and that the application is now in condition for allowance. Accordingly, such allowance is solicited.

Respectfully submitted,

Juraj BABJAK et al.

By: 

Warren M .Cheek, Jr.
Registration No. 33,367
Attorney for Applicants

WMC/dlk
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
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